

## Claims

What is claimed is:

- 5    1.    A tunable antenna matching circuit comprising:
- a ferro-electric tunable component configured
- to be coupled to an antenna;
- a matching circuit comprising the ferro-
- electric tunable component;
- 10           a control line operably coupled to the ferro-
- electric component;
- a control source electrically coupled to the
- control line, the control source configured to
- transmit a control signal on the control line;
- 15           wherein the ferro-electric component,
- responsive to the control signal, adjusts the
- impedance of the matching circuit.
2.    The tunable antenna matching circuit of claim 1,
- wherein the ferro-electric tunable component
- 20           comprises a ferro-electric tunable capacitor.
3.    The tunable antenna matching circuit of claim 2,
- further comprising a substrate wherein the

capacitor is directly mechanically coupled to the substrate.

4. The tunable antenna matching circuit of claim 1, further comprising:

5           a first inductor coupled, at a first end of the first inductor, to ground and configured to be coupled to an antenna at a second end of the first inductor;

10           a second inductor coupled, at a first end of the second inductor, to the second end of the first inductor;

15           a first capacitor coupled, at a first end of the first capacitor, to a second end of the second inductor and to ground at a second end of the first capacitor;

          a second capacitor coupled to the second end of the second inductor.

5. A wireless communication device comprising:

20           a battery;

          a transceiver;

          a user interface;

a housing encasing the battery and the transceiver and adapted to present the user interface external to the housing;

an antenna matching circuit, configured to be  
5 coupled to an antenna and comprising a ferro-electric tunable component;

a control signal generator for generating a control signal;

a control line coupled to the control signal  
10 generator and to the ferro-electric component;

a control source electrically coupled to the control line, the control source configured to transmit a control signal on the control line;

wherein the ferro-electric component,  
15 responsive to the control signal, adjusts the impedance of the matching circuit.

6. The wireless communication device of claim 5, wherein the ferro-electric tunable component comprises a ferro-electric tunable capacitor.

20 7. The wireless communication device of claim 6, further comprising a substrate wherein the capacitor is directly mechanically coupled to the substrate.

8. The wireless communication device of claim 5,  
further comprising:

5 a first inductor coupled, at a first end of  
the first inductor, to ground and configured to be  
coupled to an antenna at a second end of the first  
inductor;

a second inductor coupled, at a first end of  
the second inductor, to the second end of the  
first inductor;

10 a first capacitor coupled, at a first end of  
the first capacitor, to a second end of the second  
inductor and to ground at a second end of the  
first capacitor;

15 a second capacitor coupled to the second end  
of the second inductor.